REMARKS

Favorable reconsideration of this application, in light of the present amendments and following discussion, is respectfully requested.

Claims 5-8 and 13-16 are pending; Claims 1-4 and 9-12 are canceled; and Claims 5, 7, 13, and 15 are amended. As claims 5, 7, 13, and 15 are amended to be in independent form, it is respectfully submitted that no new matter is added by this amendment.

In the outstanding Office Action, Figure 2 was objected to; Claims 1-7 and 9-15 were rejected under 35 U.S.C. § 102(e) as anticipated by Ide et al. (U.S. Pat. No. 6,304,292, hereafter Ide); and Claims 8 and 16 were rejected under 35 U.S.C. § 103(a) as unpatentable over Ide in view of Irie et al. (U.S. Pat. No. 5,644,409, hereafter Irie).

With regard to the objection to Figure 2, Figure 2 is amended to incorporate the legend "Background Art." Support for this amendment may be found, for example, in the Description of the Related Art section of the specification. It is therefore respectfully submitted that no new matter has been added by the amendment to Figure 2, and that this objection is overcome.

With regard to the rejection of Claims 1-7 and 9-15 under 35 U.S.C. § 102(e) as anticipated by Ide, that rejection is traversed. Claims 1-4 and 9-12 are canceled, thereby rendering their rejection moot. Claims 5 and 7 are amended to incorporate the features previously recited in Claim 1. Similarly, Claims 13 and 15 are amended to incorporate the features previously recited in Claim 9.

As described in the specification, the peak value of the image signal varies due to variation in the color of the background of the original image. In many cases, the original image read by the image reading apparatus is an image printed on a paper sheet. Usually, the above-mentioned color of the background of the original image is the color of the paper sheet. The color of the paper sheet on which the original image is printed is ordinarily white.

However, when the paper sheet on which the original image is not white, but another color such as red, the peak value of the image signal varies with the color of the paper sheet on which the original image was printed. As a result, the output of the peak hold portion 4 varies, and the reference voltage of the A-D converting portion 3 varies. Consequently, the level of the black offset which should be eliminated from the original image through the black shading correction formed by the black shading correction portion 5 may vary.[1] When the signal-to-noise ratio (S/N ratio) of the image reading apparatus is poor, variation in the average of the outputs of the photoelectric sensors of the OPB portion occurs due to noise. As a result, the black reference level used for the black shading correction may vary for each line due to the noise. When the black reference level varies for each line due to noise, a pattern of lateral stripes may develop in the image represented in the image signal.[2]

As described in the non-limiting description in the specification at pages 27-28, and as depicted in the non-limiting illustration of Figure 5, the analog image signal output by the CCD portion 1 undergoes signal processing by the signal processing portion 2. Then, the analog image signal is converted into a digital image signal by the A-D converting portion 3. The digital image signal output from the A-D converting portion 3 is input into the black shading correction portion 25, and undergoes black shading correction. The average calculating circuit 17 of the black shading correction portion 25 calculates the average of outputs of the OPB portion of the CCD portion 1. Then, the average calculating circuit 17 outputs the calculated average Dopb. The moving-average circuit 29, which receives the average Dopb, calculates a moving average Db,n. The moving average Db,n represents the average, in the sub-scan direction, of (m + 1) averages, each of which average is the average in the main scan direction, and outputs the moving average Db,n to the subtractor 18. The

[1] Specification, pages 8-9.
[2] Specification, page 9, line 19 through page 10, line 10.

moving average Db,n is obtained as a result of a moving-average calculation performed using the average Dopb, n-m for the (n - m)th line (mth previous line) through the average Dopb, and for the nth line (current line). The subtractor 18, which has received the moving average Db,n, subtracts the moving average Db,n from the data D0 of the image signal output from the A-D converting portion 3 when the original image is read, and outputs this obtained data to the white shading correction portion 6.

To this end, Claims 7 and 13 recite, in relevant part, that: "the black reference level is a moving average of the black reference values." Claims 13 and 15 recite, in relevant part, that: "the black reference level for each line is obtained for moving-averaging the black reference values for the plurality of lines."

Ide relates to a digital video camera with high-speed mode. Ide describes that a recursive digital filter is constituted by a circuitry from the addition circuit 54 and through the addition result register 262, the selection circuit 58, 60 and 62, and the AND gate 56. Ide further describes that although a weighting coefficient k of the recursive digital filter is set to "1/2," an arbitrary value within a range of "$0 < k < 1$" can be set as the weighting coefficient k. Ide further describes that although the clamp level of the first line is the reference level calculated from pixel data included in the line, each of the clamp levels at and after the second line is a weighted average level of a clamp level of a preceding line and a newly obtained reference level with the coefficient k.

However, Ide fails to disclose or suggest that a black reference level is a ***moving average*** of the black reference values, as recited in independent Claims 5 and 13, or that the black reference level for each line is obtained from ***moving-averaging*** the black reference values for the plurality of lines, as recited in independent Claims 7 and 15.

Accordingly, as Ide fails to disclose or suggest the moving averages of Claims 5, 7, 13, and 15, it is respectfully submitted that these claims patentably distinguish over Ide.

Likewise, it is respectfully submitted that dependent Claims 6, 8, 14, and 16 patentably distinguish over Ide for the reasons above set forth with regard to Claims 5, 7, 13, and 15, from which these claims depend. It is therefore respectfully requested that this rejection be withdrawn.

With regard to the rejection of Claims 8 and 16 under 35 U.S.C. § 103(a) as unpatentable over Ide in view of Irie, that rejection is also traversed. Claim 8 depends from Claim 7, and Claim 16 depends from Claim 15. As noted above, Ide fails to disclose or suggest the moving averages of Claims 7 and 15. It is respectfully submitted that Irie fails to remedy the defects above-noted with regard to Ide.

Irie also does not disclose or suggest that the black reference level for each line is obtained for moving-averaging the black reference values for the plurality of lines, as recited in Claims 7 and 15.

Accordingly, as neither Ide nor Irie, either alone or in combination, discloses or suggests the features recited in independent Claims 7 and 15, it is respectfully submitted that dependent Claims 8 and 16 patentably distinguish over these two references, either alone or in combination. It is therefore respectfully requested that this rejection be withdrawn.

Moreover, it is respectfully submitted that there is no basis in the teachings of either Ide or Irie to support the applied combination. Certainly, the Office Action fails to cite to any specific teachings within either Ide or Irie to support the applied combination. It is therefore respectfully submitted that the combination of Ide and Irie is based solely upon hindsight reconstruction, and is impermissible.

Consequently, in view of the foregoing discussion and present amendments, it is respectfully submitted that this application is in condition for allowance, and an early and favorable action is therefore respectfully requested.

Respectfully submitted,

specific teachings within either Ide or Irie to support the applied combination. It is therefore respectfully submitted that the combination of Ide and Irie is based solely upon hindsight reconstruction, and is impermissible.

Consequently, in view of the foregoing discussion and present amendments, it is respectfully submitted that this application is in condition for allowance, and an early and favorable action is therefore respectfully requested.

Respectfully submitted,

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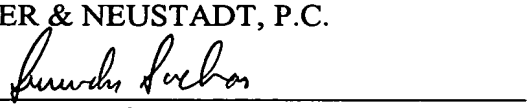

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